UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,599	03/29/2004	Fumio Nakajima	SON-2973	9712

23353 7590 04/09/2008

RADER FISHMAN & GRAUER PLLC
LION BUILDING
1233 20TH STREET N.W., SUITE 501
WASHINGTON, DC 20036

EXAMINER	
CUTLER, ALBERT H	

ART UNIT	PAPER NUMBER
2622	

MAIL DATE	DELIVERY MODE
04/09/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/810,599	NAKAJIMA, FUMIO	
	Examiner	Art Unit	
	ALBERT H. CUTLER	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 January 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7,9,10,12,13,15-23,25 and 27-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,9,10,12,13,15-23,25 and 27-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is responsive to communication filed on January 18, 2008.

Response to Arguments

2. Applicant's arguments filed January 18, 2008 have been fully considered but they are not persuasive.

3. With respect to claims 9, 10, 12, 13, 18, 19, 21, 22 and 25, Applicant argues that since the class C' consists of all differentiable functions whose derivative is continuous, this is clearly the type of correction curve described in the specification.

4. The Examiner respectfully disagrees. In addition to there being no mention that of the correction curves being analytic or differentiability class C^1 in the original disclosure, there is also no mention as to what domain said differentiability corresponds to, and there is also no mention of the specific percentage values currently found in the claims referenced above.

5. With respect to claims 17 and 20, Applicant argues that a person having ordinary skill in the art would clearly recognize the disclosed embodiment and the equation:

$$Signal_{OUT} = a^{*}(Signal_{IN})^{Y}$$

as a standard gamma curve relationship. As such the specification at least inherently, if not explicitly, discloses the features recited in these claims.

6. The Examiner respectfully disagrees. Not only is the above stated equation not contained in the original disclosure, but there is stated comparison between the gamma curve of the present invention and the equation stated above.

7. With respect to claims 15, 16, 28 and 29, Applicant argues that Examiner is confusing breadth with indefiniteness. Applicant then cites MPEP § 2173.04.

8. The Examiner respectfully disagrees. MPEP § 2173.04 states, "If the claim is too broad because it is not supported by the original description or by an enabling disclosure, a rejection under 35 U.S.C. 112, first paragraph, would be appropriate." The equation found in claims 15, 28 and 29 is not supported or enabled by the original disclosure. Rather the original disclosure teaches gamma curves corresponding to equations with very specific numbers. The current equation and associated variables are much broader than the correction curves originally disclosed. See also MPEP § 2163.05.

9. With respect to claim 1, Applicant argues that Poynton does not disclose the claimed type of gamma curve, wherein the input is a video signal and the corrected video signal conforms to film properties. Additionally, there is no mention of the particular conditions corresponding to the correction claimed by Applicant, nor therefore is there an implementation of the particular correction curve to carry out video signal input to film property correction as claimed. Accordingly, Poynton is at least deficient in failing to disclose or suggest wherein said at least one correction curve has a slope of 5.0 or less at the origin such that a corrected video signal conforms to film properties, as claimed by Applicant.

10. The Examiner respectfully disagrees. First of all, Poynton clearly teaches a slope of 5.0 or less at the origin(figure 6.6, pages 102-103). Second, stating that a corrected video signal corresponds to film properties is very broad. From reading claim

1 it would appear that a correction curve with a slope of 5.0 or less corresponds to film properties. Poynton clearly meets this limitation as illustrated above. Furthermore, Poynton teaches that when correcting gamma in **film**, it is beneficial to stretch the contrast ratio of the reproduced image(pages 100-101). To perform this "stretching" an end-to-end power function with an exponent of 1.1 or 1.2 is used. Poynton teaches an end-to-end power function of about 1.13, which clearly produces a video signal corresponding to film properties. Lastly, Applicant's argument that there is no mention of the particular conditions corresponding to the correction claimed, is not a valid argument because Poynton meets all the limitations of claim 1 and therefore teaches all the claimed particular conditions.

11. With respect to claim 4, Applicant again argues that Poynton does not conform to film properties or mention particular conditions. The issues have been addressed with reference to claim 1 as illustrated above. Applicant further argues that there is absolutely no mention in Poynton of a second curve segment lying above a predetermined level. Still further, there is no mention in Poynton of a potential point of inflection at the predetermined level of the input signal nor is there any mention of continuously combining the two segments in this regard.

12. The Examiner respectfully disagrees. The Examiner interprets the second curve segment to be the portion of the curve in figure 6.6 extending after the tristimulus value of 0.018(see figure 6.6, pages 102-103). Poynton explicitly teaches a point of inflection at the tristimulus value of 0.018, wherein the two segments are continuously combined about this point of inflection. Starting from the bottom of page 102, Poynton teaches,

"Rec. 709 specifies a slope of 4.5(i.e. a first segment) below a tristimulus value of +0.018, and stretches the remainder of the curve(i.e. a second segment) to maintain function and tangent continuity at the breakpoint(i.e. point of inflection)."

13. With respect to claims 3 and 6, Applicant argues that Hiramatsu does not cure the deficiencies of Poynton.

14. The Examiner respectfully disagrees. Poynton cures the deficiencies illustrated by Applicant, as discussed above. Further Hiramatsu clearly relates to gamma correction(paragraph 0066), and is thus analogous art.

15. Therefore, the rejection is maintained by the Examiner.

Claim Rejections - 35 USC § 112

16. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

17. Claims 9, 10, 12, 13, 15-22, 25, 28 and 29 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

18. The Examiner's response to Applicant's arguments, as illustrated above, is hereby incorporated into the rejection of claims 9, 10, 12, 13, 15-22, 25, 28 and 29 by reference.

Regarding claims 9, 10, 12, 13, 18, 19, 21, 22 and 25, the Examiner has found no mention of correction curves corresponding to the differentiability class C^1 on any domain, or of correction curves corresponding to an analytic function of any domain in the original disclosure. Therefore, these claims are rejected as introducing new matter.

Regarding claims 17 and 20, the Examiner has found no mention of the equation:

$$Signal_{OUT} = a^{*}(Signal_{IN})^{Y}$$

The Examiner has found no comparison between this equation, and the level of compression of a correction curve of the present invention within the original written disclosure. Therefore, these claims are rejected as introducing new matter.

Regarding claims 15, 16, 28 and 29, Applicant has defined logarithmic correction curves in pages 13-16 of the specification. However, Applicant has provided specific numbers in these equations, and has not defined variables or ranges of variables as contained in the currently claimed:

$$Signal_{OUT} = a^{*}\log_{10}(Signal_{IN} + b) + c$$

Therefore, these claims are rejected as introducing new matter.

35 U.S.C. 132(a) provides that "no amendment shall introduce new matter into the disclosure of the invention." Any amendment entered pursuant to 37 CFR 1.114 that is determined to contain new matter should be treated in the same manner that a reply under 37 CFR 1.111 determined to contain new matter is currently treated. See MPEP §

706.03(o). **In those instances in which an applicant seeks to add new matter to the disclosure of an application, the procedure in 37 CFR 1.114 is not available, and the applicant must file a continuation-in-part application under 37 CFR 1.53(b) containing such new matter.**

Claim Rejections - 35 USC § 102

19. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

20. Claims 1, 2, 4, 5, 7, 23, and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Poynton("A Technical Introduction to Digital Video").

21. The Examiner's response to Applicant's arguments, as illustrated above, is hereby incorporated into the rejection of claims 1, 2, 4, 5, 7, 23 and 27 by reference.

Consider claim 1, Poynton teaches:

A gamma correction device in an image capturing apparatus(page 100, paragraph 3, page 101, figure 6.5), the gamma correction device performing gamma correction on a video signal from an image capturing element on the basis of at least one correction curve having a predetermined input-output characteristic(Gamma correction is performed based on the Rec. 709 correction curve, pages 100-103, figure 6.6.), wherein said at least one correction curve has a slope of 5.0 or less at the origin(The slope is 4.5, pages 102-103.) such that a corrected video signal conforms to film properties(see bottom of page 100 through page 101).

Consider claim 2, and as applied to claim 1 above, Poynton further teaches that the slope of said at least one correction curve at the origin is settable based on various conditions(Poynton teaches that the slope at the origin is settable to 4.5 based on Rec. 709(see claim 1 rationale), or 4.0 based on SMPTE 240M(See page 103, Eq. 6.2). Poynton further teaches that much HDTV equipment uses SMPTE 240M parameters. However, Poynton teaches that the slope of Rec. 709 should be used for all but very unusual conditions(i.e. various conditions).).

Consider claim 4, Poynton teaches:

A gamma correction device in an image capturing apparatus(page 100, paragraph 3, page 101, figure 6.5), the gamma correction device performing gamma correction on a video signal from an image capturing element on the basis of at least one correction curve having a predetermined input-output characteristic(Gamma correction is performed based on the Rec. 709 correction curve, pages 100-103, figure 6.6.), wherein said at least one correction curve comprises a composite of a first correction curve segment lying from the origin to a predetermined level of an input signal(The correction curve comprises a first segment lying from the origin to an output tristimulus value of 0.018. See pages 102-103, Eq. 6.1 and figure 6.6.) such that a corrected video signal conforms to a cathode-ray tube monitor(Gamma correction is applied for the purpose of pre-compensating for the nonlinearity of a CRT, pages 100-101.) and a second correction curve segment lying above the predetermined level(see

figure 6.6) of the input signal such that the corrected video signal conforms to film properties(The second curve segment is an exponential power function. See the bottom of page 100 through page 101.), and both correction curve segments are continuously combined and have the same slope at the predetermined level of the input signal(see figure 6.6).

Consider claim 5, and as applied to claim 4 above, Poynton further teaches that the predetermined level of the input signal is settable based on various conditions(Poynton teaches that the predetermined level of the input signal is settable to 0.018 based on Rec. 709(see pages 102-103, Eq. 6.1), or 0.0228 based on SMPTE 240M(See page 103, Eq. 6.2). Poynton further teaches that much HDTV equipment uses SMPTE 240M parameters. However, Poynton teaches that the slope of Rec. 709 should be used for all but very unusual conditions(i.e. various conditions).).

Consider claim 7, and as applied to claim 1 above, Poynton further teaches that the image capturing apparatus is a video camera(see pages 100-101, figure 6.5).

Consider claim 23, and as applied to claim 4 above, Poynton further teaches that the image capturing apparatus is a video camera(see pages 100-101, figure 6.5).

Consider claim 27, and as applied to claim 4 above, Poynton further teaches that said first correction curve segment corresponds to the ITU-709 characteristic curve("Rec. 709", pages 101-103, figure 6.6).

Claim Rejections - 35 USC § 103

22. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

23. Claims 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Poynton in view of Hiramatsu(US 2002/0061142).

24. The Examiner's response to Applicant's arguments, as illustrated above, is hereby incorporated into the rejection of claims 3 and 6 by reference.

Consider claim 3, and as applied to claim 1 above, Poynton teaches that said at least one correction curve comprises a plurality of correction curve segments(see pages 102-103, figure 6.6). However, Poynton does not explicitly teach a plurality of correction curves having different slopes and being selectable based on various conditions.

Hiramatsu is similar to Poynton in that Hiramatsu teaches of correcting moving images(paragraph 0003). Hiramatsu also similarly teaches of using gamma curves for image correction(paragraph 0066).

However, in addition to the teachings of Poynton, Hiramatsu teaches that the at least one correction curve comprises a plurality of correction curves having different

slopes and being selectable based on various conditions(Different gamma curves are selectable based on characteristics of the image being captured, paragraphs 0066-0069. These gamma curves are stored in an LUT and have different slopes as they are used to lighten and/or darken different portions of the image based on the current scene and lighting.).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to have the at least one correction curve taught by Poynton comprise a plurality of correction curves stored in an LUT and selectable based on various conditions as taught by Hiramatsu for the benefit that different amounts of gamma correction are necessary for different types of scenes in order to capture images with desirable contrast(Hiramatsu, paragraph 0066).

Consider claim 6, and as applied to claim 4 above, Poynton teaches that said at least one correction curve comprises a plurality of correction curve segments(see pages 102-103, figure 6.6). However, Poynton does not explicitly teach a plurality of correction curves having different predetermined levels of the input signals and being selectable based on various conditions.

Hiramatsu is similar to Poynton in that Hiramatsu teaches of correcting moving images(paragraph 0003). Hiramatsu also similarly teaches of using gamma curves for image correction(paragraph 0066).

However, in addition to the teachings of Poynton, Hiramatsu teaches that the at least one correction curve comprises a plurality of correction curves having different

predetermined levels of the input signals and being selectable based on various conditions(Different gamma curves are selectable based on characteristics of the image being captured, paragraphs 0066-0069. These gamma curves are stored in an LUT and have different predetermined levels of the input signals as they are used to lighten and/or darken different portions of the image based on the current scene and lighting.).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to have the at least one correction curve taught by Poynton comprise a plurality of correction curves stored in an LUT and selectable based on various conditions as taught by Hiramatsu for the benefit that different amounts of gamma correction are necessary for different types of scenes in order to capture images with desirable contrast (Hiramatsu, paragraph 0066).

Conclusion

25. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALBERT H. CUTLER whose telephone number is (571)270-1460. The examiner can normally be reached on Mon-Thu (9:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan V Ho can be reached on (571)-272-7365. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AC

/Tuan V Ho/
Primary Examiner, Art Unit 2622